

Parent  
ANM-00-087-A  
Bundled w/ ANM-00-230-A  
ANM-00-229-A

ANM-00-228-A

TAE  
Electrical Sys  
HWG

## ARAC ESHWG REPORT 25.1353(a)

### 1 - What is underlying safety issue addressed by the FAR/JAR?

FAR/JAR give requirements relating to electrical installation including equipment, controls and wiring.

### 2 - What are the current FAR and JAR standards?

#### Current FAR text:

Electrical equipment, controls, and wiring must be installed so that operation of any one unit or system of units will not adversely affect the simultaneous operation of any other electrical unit or system essential to the safe operation.

#### Current JAR text:

Electrical equipment, controls, and wiring must be installed so that operation of any one unit or system of units will not adversely affect the simultaneous operation of any other electrical unit or system essential to the safe operation. Any electrical interference likely to be present in the aeroplane must not result in hazardous effects upon the aeroplane or its systems except under extremely remote conditions. (See ACJ 25.1353 (a).)

### 3 - What are the differences in the standards and what do these differences result in?

Both texts require that operation of any one unit or system will not adversely affect the simultaneous operation of any other electrical unit or system essential to safe operation under normal operating conditions. The JAR text also considers failure effects on the aeroplane or its systems and is therefore considered to be more stringent. JAR 25 1353(a) with its related ACJ 25.1353(a) provides a clarification in the intent of the requirement.

### 4 - What, if any, are the differences in the means of compliance?

No specific means of compliance is furnished in the FAR. JAR has a specific ACJ to establish a list of possible sources of interference and reference to JAR 25-1309 to be considered and used for means of compliance.

ACJ 25.1353(a) Electrical Equipment and Installations (Interpretative Material)  
See JAR 25.1353(a).

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The possible sources of interference to be considered should include

- a. Conducted and radiated interference caused by electrical noise generation from apparatus connected to the busbars,
- b. Coupling between electrical cables or between cables and aerial feeders,
- c. Malfunctioning of electrically-powered apparatus,
- d. Parasitic currents and voltages in the electrical distribution and earth systems, including the effects of lightning currents or static discharge,
- e. Difference frequencies between generating or other systems, and
- f. The requirements of JAR 25.1309 should also be satisfied.

### **5 – What is the proposed action?**

Adoption of JAR 25-1353 (a) and associated ACJ.

### **6 - What should the harmonized standard be?**

The current standard of JAR 25.1353(a) and associated ACJ.

### **7 - How does this proposed standard address the underlying safety issue (identified under #1)?**

The proposal extends the requirement to include failure conditions and establishes the means of compliance.

### **8 - Relative to the current FAR, does the proposed standard increase, decrease, or maintain the same level of safety? Explain.**

By extending the requirement to include failure conditions and adding clarification the proposed standard will increase safety.

### **9 - Relative to current industry practice, does the proposed standard increase, decrease, or maintain the same level of safety? Explain.**

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The proposal is in line with current industry practice and improves the understanding of the requirement.

### **10 - What other options have been considered and why were they not selected?**

FAR adoption was considered, however for the reasons as stated above the JAR with associated ACJ was retained.

### **11 - Who would be affected by the proposed change?**

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As the proposal is in line with the current design practices, the effect is considered to be minimum for aircraft operators and manufacturers affected by this change

**12 - To ensure harmonization, what current advisory material (e.g., ACJ, AMJ, AC, policy letters) needs to be included in the rule text or preamble?**

The current ACJ of JAR 25.1353(a) is proposed to be introduced in FAR as advisory material.

**13 - Is existing FAA advisory material adequate?**

There is no current published FAA advisory material. It is recommended that the JAR ACJ to 25.1353(a) be adopted in FAR.

**14 - How does the proposed standard compare to the current ICAO standard?**

The proposal is in line with ICAO Annex 8 Chapter 8 Electrical Systems

**15 - Does the proposed standard affect other HWG's?**

This proposal does not affect other HWG's.

**16 - What is the cost impact of complying with the proposed standard?**

As the proposal is in line with standard design practices the cost impact is negligible.

**17 - Does the HWG want to review the draft NPRM at "Phase 4" prior to publication in the Federal Register?**

Yes.

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**18 - In light of the information provided in this report, does the HWG consider that the "Fast Track" process is appropriate for this rulemaking project, or is the project too complex or controversial for the Fast Track Process? Explain.**

The ESHWG considers that the fast track process is appropriate.